



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,937	04/28/2005	Shuji Doi	Q87467	3089
23373	7590	10/23/2008	EXAMINER	
SUGHRUE MION, PLLC			YAMNITZKY, MARIE ROSE	
2100 PENNSYLVANIA AVENUE, N.W.				
SUITE 800			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20037			1794	
			MAIL DATE	DELIVERY MODE
			10/23/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/532,937	DOI ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Marie R. Yamnitzky	1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 11 July 2008.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-30 is/are pending in the application.  
 4a) Of the above claim(s) 12-22 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-11 and 23-30 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date <u>28 Apr 2005</u> .	6) <input type="checkbox"/> Other: _____ .

1. Applicant's election without traverse in the reply filed on July 11, 2008 is acknowledged. Applicant elects Group I, claims 1-11 and 23-30 and, in response to the election of species requirement, elects Polymer Compound H. Polymer Compound H is a polymer comprising a repeating unit of formula (1) as shown in claim 1 wherein one of X<sup>1</sup> and X<sup>2</sup> represents O and the other represents C(R<sup>1</sup>)(R<sup>2</sup>), and the polymer further comprises a repeating unit of formula (6) as shown in claim 6 wherein a represents 1 and each of X<sup>6</sup> and X<sup>7</sup> represents -N(R<sup>21</sup>)-.

Claims 1-11 and 23-30 read on the elected invention and the elected species. (Claim 7 is considered by the examiner to read on the elected species because claim 7 further defines formula (5) but does not require the polymer to comprise a repeating unit of formula (5). Claim 7 is interpreted as requiring a repeating unit represented by any of formulae (9)-(14) as defined in claim 7 or any of formulae (6)-(8) as defined in claim 6, from which claim 7 depends.)

2. A search of the prior art found that the prior art does not disclose or suggest applicant's elected species. More broadly, the prior art does not disclose or suggest the subset of polymers within the scope of the present claims wherein the polymer comprises a repeating unit of formula (1) as shown in claim 1 wherein one of X<sup>1</sup> and X<sup>2</sup> represents O and the other represents C(R<sup>1</sup>)(R<sup>2</sup>). (While claim 5 limits the formula (1) repeating unit to this structure, claim 5 is not limited to a polymer comprising the formula (1) repeating unit.)

Although some non-elected species are addressed in this Office action, applicant is cautioned that this Office action does not represent an examination on the merits of all non-elected species within the scope of the examined claims.

3. Claims 12-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on July 11, 2008.

4. Claim 3, with claims 4 and 5 dependent directly or indirectly therefrom, are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n).

Claim 3 depends from claims 1 or 2, and refers to claim 1 for the definition of various variables. (References to claim 1 and the variables defined in claim 1 could be deleted from claim 3. The only variables that need to be defined in claim 3 are those variables that are either not in claim 1, or are more limited than as defined in claim 1.)

5. Claims 1-11 and 23-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The two lines preceding formula (2) in claim 1 and the last two lines of claim 1 require bonding of specified Ar and X variables “to adjacent carbons in the aromatic ring” of a specified Ar variable. The scope of the claims is not clear given these claim requirements because the Ar variables are not limited to aromatic rings since each may be a trivalent heterocyclic group and a heterocyclic group is not necessarily an aromatic group, and because a heterocyclic group, even if it is an aromatic group, will not necessarily have adjacent carbons.

The tenth line of claim 6 twice sets forth a formula including a subscript “y”. The “y” is not defined.

The last line of claim 6 defines “b” but there is no “b” variable elsewhere in the claim.

Formula (11) in claim 7 includes the variables “f” and “g”. These variables are not defined in the claim.

Claim 10 is drawn to a polymer compound “having a liquid-crystal property”. It is not clear if this requires the polymer compound to be a liquid-crystal, or if “a liquid-crystal property” could be a property other than liquid-crystallinity, per se.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, 6-11 and 23-30 are rejected under 35 U.S.C. 102(a) or under 35 U.S.C. 102(e) as being anticipated by Kobayashi et al. (US 2003/0168656 A1).

The 102(a) date of this reference is September 11, 2003. The 102(e) date of this reference is December 4, 2002. Applicant cannot rely upon the foreign priority papers to

overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

The applied reference has a common inventor with the instant application, but a different inventive entity. The rejection under 35 U.S.C. 102(e) might also be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Kobayashi et al. disclose polymers having a polystyrene reduced number average molecular weight of  $10^3$ - $10^8$  and comprising a repeating units represented by formula (1) as defined, for example, in paragraphs [0006]-[0007]. The repeating unit of the second formula on page 19 is a specific example of a repeating unit of Kobayashi’s formula (1) repeating unit, and provides a polymer comprising a repeating unit of formula (1) as defined in present claim 1 wherein one of  $X^1$  and  $X^2$  represents Si(alkyl)(alkyl) and the other represents Si(aryl)(aryl).

A polymer comprising the repeating unit of the second formula on page 19 of Kobayashi’s patent application publication further meets the limitations of a polymer within the scope of present claim 2.

With respect to the limitations of present claims 6-9, see paragraphs [0048]-[0052] and [0066]-[0072] for example.

Claim 10 is included in this rejection subject to clarification of the limitations imposed by the phrase “having liquid-crystal property”.

With respect to present claims 11 and 23-30 see paragraphs [0138]-[0148], [0187], [0189]-[0190] and [0219] for example.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-7, 9-11 and 23-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marrocco, III et al. (US 2002/0028347 A1).

See the entire patent application publication. In particular, see paragraphs [0002], [0012]-[0014], [0028], [0034]-[0046] and [0056]-[0063].

Polymers comprising a repeating unit of formula (2) as defined in present claim 1 wherein one of  $X^3$  and  $X^4$  represents N and the other represents C( $R^9$ ) would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention given Marrocco's teaching of a polymer comprising repeat units of formula II wherein A is -N=CR<sub>1</sub>- (e.g. paragraphs [0012]-[0013] and [0041]-[0043]). With respect to the molecular weight limitation set forth in present claim 1, it would have been within the level of one of ordinary skill in the art at the time of the invention to determine suitable and optimum molecular weights for the polymers, and one would have been lead to molecular weights within the present broad range by Marrocco's teachings such as in paragraph [0046].

Present claims 2-5 further limit the repeating unit of formula (1), but are not limited to a polymer comprising a repeating unit of formula (1). Accordingly, polymers having a repeating unit of present formula (2), such as Marrocco's polymer comprising repeat units of Marrocco's formula II wherein A is -N=CR<sub>1</sub>-, are within the scope of claims 2-5 as long as the polymer is made so as to have a molecular weight within the range recited in claim 1.

Polymers comprising a repeating unit of formula (2) as defined in present claim 1, with claims 2-5 dependent therefrom, wherein each of X<sup>3</sup> and X<sup>4</sup> represents C(R<sup>9</sup>) and the R<sup>9</sup> of X<sup>3</sup> is different from the R<sup>9</sup> of X<sup>4</sup> (and thus X<sup>3</sup> and X<sup>4</sup> are not the same) also would have been obvious to one of ordinary skill in the art at the time of the invention given Marrocco's teaching of a polymer comprising repeat units of formula II wherein A is -CR<sub>1</sub>=CR<sub>2</sub>- since the R variables do not need to be identical.

Polymers comprising a repeating unit of formula (1) as defined in present claim 1 and further defined in present claim 2, wherein each of X<sup>1</sup> and X<sup>2</sup> represents C(R<sup>1</sup>)(R<sup>2</sup>) and the (R<sup>1</sup>)(R<sup>2</sup>) combination of X<sup>1</sup> is different from the (R<sup>1</sup>)(R<sup>2</sup>) combination of X<sup>2</sup> (and thus X<sup>1</sup> and X<sup>2</sup> are not the same) also would have been obvious to one of ordinary skill in the art at the time of the invention given Marrocco's teaching of a polymer comprising repeat units of formula II wherein A is -CR<sub>1</sub>R<sub>2</sub>CR<sub>3</sub>R<sub>4</sub>- since the R variables do not need to be identical.

With respect to present claims 6 and 7, polymers comprising a repeating unit of Marrocco's formula II within the scope of present formula (1) or (2) as defined in claim 1, and further comprising a repeating unit within the scope of those encompassed by present claims 6 and 7 would have been obvious to one of ordinary skill in the art at the time of the invention

given Marrocco's teachings such as in paragraphs [0041]-[0044]. For example, the formula in paragraph [0041] encompasses polymers comprising a repeating unit of present formula (1) or (2) and a repeating unit of present formula (5) wherein Ar<sup>5</sup> is a divalent group having a metal complex structure. As another example, polymers further comprising a repeating unit of present formula (8) wherein X<sup>7</sup> represents N(R<sup>21</sup>) are suggested by Marrocco's teachings in paragraph [0044].

With respect to present claim 9, it would have been within the level of ordinary skill in the art at the time of the invention to determine suitable and optimum relative amounts for a repeating unit of Marrocco's formula II in a polymer according to Marrocco guided by Marrocco's teachings. One would have been lead to percentages of formula II repeating units within the broad range of claim 9 by Marrocco's teachings.

Claim 10 is included in this rejection subject to clarification of the limitations imposed by the phrase "having liquid-crystal property".

With respect to claims 11 and 23-29, see paragraphs [0002], [0028], [0046] and [0056]-[0063] for example.

With respect to claim 30, Marrocco does not explicitly teach using a polymer light-emitting device according to Marrocco's invention in a liquid crystal display, but Marrocco's devices are OLED devices and it was known in the art at the time of the invention to utilize OLED devices in liquid crystal displays.

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-11 and 23-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-27 of copending Application No. 10/573,839. Although the conflicting claims are not identical, they are not patentably distinct from each other because there is substantial overlap between the polymer and products comprising the polymer per the copending claims, and the polymer and products comprising the polymer per the present claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Claims 1-7, 9-11 and 23-25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-11 of copending Application No. 11/572,513. Although the conflicting claims are not identical, they are not patentably distinct from each other because there is substantial overlap between the polymer and products comprising the polymer per copending claims 1-10 and the polymer and products comprising the polymer per present claims 1-7, 9-11, 23 and 25. An ink composition as per present claim 24 would have been obvious to one of ordinary skill in the art given copending claim 11 per which various printing methods can be used to make a film comprising the polymer of copending claim 1.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

13. Applicant's IDS filed April 28, 2005 listed JP 2003-221579, but no copy of the reference has been provided. The examiner provides a copy with this action and the reference is made of record via the accompanying PTO-892.

14. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 7:00 a.m. to 3:30 p.m. Monday-Friday.

The current fax number for all official faxes is (571) 273-8300. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

/Marie R. Yamnitzky/  
Primary Examiner, Art Unit 1794

MRY  
October 17, 2008